

## WHAT IS CLAIMED IS:

1. A collagen-binding physiologically active polypeptide having both collagen-binding activity and physiological activity different from fibronectin-activities including collagen-binding activity comprising:

a first peptide having collagen-binding activity and consisting of an amino acid sequence which is identical to an amino acid sequence of protease-hydrolysis fragment of fibronectin with at least one protease selected from a group consisting of trypsin, chymotrypsin, thermolysin, plasmin, thrombin, cathepsin D, cathepsin G, pepsin, subtilisin, leukocyte elastase and chymase, and which corresponds to an internal amino acid sequence in collagen-binding domain ranging from 28kDa to 75kDa from the amino-terminal of fibronectin,

fused with

a second peptide having physiological activity different from fibronectin activities including collagen-binding activity.

2. A collagen-binding physiologically active polypeptide according to claim 1 wherein said first peptide consists of an internal amino acid sequence of human fibronectin selected from a group consisting of  
 from Ala<sup>260</sup> to Trp<sup>399</sup> (Ala<sup>2</sup> to Trp<sup>341</sup> of SEQ ID NO.1),  
 from Ala<sup>260</sup> to Leu<sup>493</sup> (Ala<sup>2</sup> to Leu<sup>225</sup> of SEQ ID NO.1),

from Ala<sup>260</sup> to Arg<sup>484</sup> (Ala<sup>2</sup> to Arg<sup>226</sup> of SEQ ID NO.1),  
 from Val<sup>262</sup> to Arg<sup>484</sup> (Val<sup>4</sup> to Arg<sup>226</sup> of SEQ ID NO.1),  
 from Val<sup>262</sup> to Trp<sup>599</sup> (Val<sup>4</sup> to Trp<sup>341</sup> of SEQ ID NO.1),  
 from Val<sup>377</sup> to Leu<sup>483</sup> (Val<sup>119</sup> to Leu<sup>225</sup> of SEQ ID NO.1),  
 from Val<sup>377</sup> to Trp<sup>599</sup> (Val<sup>119</sup> to Trp<sup>341</sup> of SEQ ID NO.1),  
 from Leu<sup>483</sup> to Trp<sup>599</sup> (Leu<sup>225</sup> to Trp<sup>341</sup> of SEQ ID NO.1),  
 from Arg<sup>484</sup> to Trp<sup>599</sup> (Arg<sup>226</sup> to Trp<sup>341</sup> of SEQ ID NO.1).  
 from Ala<sup>261</sup> to Phe<sup>584</sup> (Ala<sup>3</sup> to Phe<sup>326</sup> of SEQ ID NO.1),  
 from Ala<sup>261</sup> to Gln<sup>482</sup> (Ala<sup>3</sup> to Gln<sup>224</sup> of SEQ ID NO.1),  
 from Arg<sup>484</sup> to Phe<sup>584</sup> (Arg<sup>226</sup> to Phe<sup>326</sup> of SEQ ID NO.1),  
 from Val<sup>262</sup> to Phe<sup>584</sup> (Val<sup>4</sup> to Phe<sup>326</sup> of SEQ ID NO.1),  
 from Leu<sup>483</sup> to Phe<sup>584</sup> (Leu<sup>225</sup> to Phe<sup>326</sup> of SEQ ID NO.1),  
 and from Asp<sup>485</sup> to Trp<sup>599</sup> (Asp<sup>227</sup> to Trp<sup>341</sup> of SEQ ID NO.1).

3. A collagen-binding physiologically active polypeptide according to claim 1 wherein said protease-hydrolysis is a proteolysis with a combination of chymotrypsin and plasmin.

4. A collagen-binding physiologically active polypeptide according to claim 3 wherein the first peptide consists of an amino acid sequence of human fibronectin Ala<sup>260</sup> to Trp<sup>599</sup> (Ala<sup>2</sup> to Trp<sup>341</sup> of SEQ ID NO.1).

5. A collagen-binding physiologically active polypeptide according to claim 1 wherein said protease-hydrolysis is a proteolysis with trypsin.

6. A collagen-binding physiologically active polypeptide according to claim 5 wherein the first peptide consists an amino acid sequence Ala<sup>260</sup> to Arg<sup>484</sup> (Ala<sup>2</sup> to Arg<sup>226</sup> of SEQ ID NO.1).

7. A collagen-binding physiologically active polypeptide according to claim 1 wherein said protease-hydrolysis is a proteolysis with a combination of trypsin and chymotrypsin.

8. A collagen-binding physiologically active polypeptide according to claim 7 wherein the first peptide consists of an amino acid sequence Asp<sup>485</sup> to Trp<sup>599</sup> (Asp<sup>227</sup> to Trp<sup>341</sup> of SEQ ID NO.1).

9. A collagen-binding physiologically active polypeptide according to claim 1 wherein said second peptide is a physiologically active peptide selected from a group consisting of a cytokine, insulin, parathyroid hormone and matrix metalloproteinases (MMPs).

10. A collagen-binding physiologically active polypeptide according to claim 1 wherein said second peptide is a cytokine.

11. A collagen-binding physiologically active polypeptide according to claim 10 wherein said cytokine is a growth factor.

12. A collagen-binding physiologically active polypeptide according to claim 1 wherein said second peptide is fused on the carboxyl terminal side of said first peptide.

13. A collagen-binding physiologically active polypeptide according to claim 12 wherein an amino acid spacer having less than 7 residues is inserted at the fusion site of the first peptide.

14. A collagen-binding physiologically active polypeptide according to claim 13 wherein a carboxyl terminal of said amino acid spacer is a proteolytic site.

15. A collagen-binding physiologically active polypeptide according to claim 1 wherein said collagen-binding activity is inhibited competitively by fibronectin.

16. A collagen-binding physiologically active polypeptide according to claim 1 wherein said polypeptide is produced in bacteria.

17. A collagen-binding physiologically active polypeptide according to claim 1 wherein said polypeptide is produced in a

transformant containing a recombinant vector including the gene coding for said collagen-binding physiologically active polypeptide.

18. An agent for enabling topical retention or sustained release of a physiologically active peptide or a physiological activity-imparting agent which contains the collagen-binding physiologically active polypeptide of claim 1.

19. A biomaterial comprising a composite wherein the collagen-binding physiologically active polypeptide of claim 1 is combined with collagen or gelatin.

20. An agent for enabling topical retention or sustained release of a physiologically active peptide or a physiological activity-imparting agent which contains the biomaterial of claim 19.